USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003DC39B

Title: Effect of Microorganisms on the Speciation of Tributyltin and Triphenyltin compounds in clays from Sediments Using Mossbauer Spectroscopy

Project Type: Research

Focus Categories: Toxic Substances, Sediments, Water Quality

Keywords: tributyltin, triphenyltin, sediments, microorganisms, pollution, mossbauer spectroscopy

Start Date: 03/01/2003

End Date: 02/28/2004

Federal Funds Requested: $ 7612.00

Matching Funds: $15224.00

Congressional District: District of Columbia

Principal Investigators: May, Dr. Leopold (The Catholic University of America)

Abstract: Organotin compounds are used as antifoulants in marine paints of which triorganotin compounds still are used on many leisure marine craft and foreign vessels contributing to the problem of water quality in the waterways of this area. There are several marinas located in the District of Columbia and its environs. There is limited information on the speciation of these toxic compounds used in paint formulations in fresh and seawater and in sediments and its components found in the waterways. The purpose of the proposed research is to determine the effect of microorganisms on the fate of tributyltin and triphenyltin compounds in components of sediments. The results will provide the individuals interested in water quality with knowledge of fate of the tributyltin and triphenyltin compounds. During the grant period, the study will be concerned with the effect of various microorganisms on the speciation of these compounds in clays found in the sediments from the Anacostia and Potomac Rivers. Knowledge of the products of such reactions would aid those who are making decisions concerning the future use of triorganotin compounds as antifoulants in marine paints. For those studying the environmental impact on the life forms in the waterways, it would provide knowledge of the forms of triorganotin compounds that may interact with these life forms. It also would be of value for those paint companies who are manufacturing marine paints to assist them in determining which organotin compounds to use. The

proposed research is also designed to provide training of students at the University of the District of Columbia and The Catholic University of America in the performance of the type of research that is being undertaken at government, industrial, and university laboratories.

U.S. Department of the Interior, *U.S. Geological Survey*
Maintain: Schefter@usgs.gov
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